

WHAT IS CLAIMED IS:

1. A method for managing a collection of digital color images, comprising the steps of:

analyzing digital color images in the collection, and for each digital color
5 image analyzed

partitioning that digital color image into a plurality of blocks, each block containing a plurality of transform coefficients, and

extracting a feature set derived from transform coefficients of that digital image, the feature set comprising color features, edge features, and texture
10 features including texture-type, texture-scale and texture-energy.

2. A method as recited in claim 1, wherein the digital color images analyzed are specifically formatted thumbnail color images.

3. A method as recited in claim 1, wherein the partitioning step comprises partitioning each primary color component of the digital color image being
15 analyzed, and the color features comprise a separate color feature for each primary color of that digital color image.

4. A method as recited in claim 3, wherein the separate color features are represented by separate histograms, one for each primary color.

5. A method as recited in claim 1, wherein the partitioning step comprises
20 partitioning each primary color component of the digital color image being analyzed, and the edge features comprise a separate edge feature for each primary color of that digital color image.

6. A method as recited in claim 5, wherein the separate edge features are represented by separate histograms, one for each primary color.

7. A method as recited in claim 1, wherein the texture-type feature, texture-scale feature and texture-energy feature are represented by respective histograms.

8. A method as recited in claim 1, further comprising the steps of:

applying the partitioning and extracting steps to a new digital color image to be used as a query image;

comparing the feature set of the query image to the feature set of each digital color image in at least a subset of the collection; and

identifying each digital color image in the collection that has a feature set that is similar to the feature set of the query image.

9. A method as recited in claim 1, further comprising the steps of:

selecting a particular digital color image in the collection as a query image; and

comparing the feature set of the selected query image to the feature set of each digital color image in at least a subset of the collection; and

identifying each digital color image in the collection that has a feature set that is similar to the feature set of the selected query image.

10. An apparatus for performing an algorithm for managing a collection of digital images, the apparatus comprising:

a module configured to partition each digital color image to be analyzed into a plurality of blocks, each block containing a plurality of transform coefficients, and

a module configured to extract a feature set derived from transform coefficients of that digital image, the feature set comprising color features, edge features, and texture features including texture-type, texture-scale and texture-energy.

11. An apparatus as recited in claim 10, wherein the digital color images analyzed are specifically formatted thumbnail color images.

12. An apparatus as recited in claim 10, wherein the partition module is configured to partition each primary color component of the digital color image being analyzed, and the color features comprise a separate color feature for each primary color of that digital color image.
- 5 13. An apparatus as recited in claim 12, wherein the separate color features are represented by separate histograms, one for each primary color.
14. An apparatus as recited in claim 10, wherein the partition module is configured to partition each primary color component of the digital color image being analyzed, and the edge features comprise a separate edge feature for each
10 primary color of that digital color image.
15. An apparatus as recited in claim 14, wherein the separate edge features are represented by separate histograms, one for each primary color.
16. An apparatus as recited in claim 10, wherein the texture-type feature, texture-scale feature and texture-energy feature are represented by respective
15 histograms.
17. An apparatus as recited in claim 10, further comprising:
a module configured to select a digital color image as a query image;
a module configured to compare the feature set of the selected query image to the feature set of each digital color image in at least a subset of the collection; and
20 a module configured to identify each digital color image in the collection that has a feature set that is similar to the feature set of the selected query image.
18. An apparatus as recited in claim 10, wherein the apparatus comprises a processor-controlled device.
19. An apparatus as recited in claim 18, wherein the processor-controlled device
25 comprises a personal computer, a personal digital assistant, or a cell phone.

20. A machine-readable medium having a program of instructions for directing a machine to perform an algorithm for managing a collection of digital images, the program of instructions comprising:

instructions for analyzing digital color images in the collection, and for each
5 digital color image analyzed

instructions for partitioning that digital color image into a plurality of blocks, each block containing a plurality of transform coefficients, and

instructions for extracting a feature set derived from transform
coefficients of that digital image, the feature set comprising color features, edge
10 features, and texture features including texture-type, texture-scale and texture-energy.

21. A machine-readable medium as recited in claim 20, wherein the digital color images analyzed are specifically formatted thumbnail color images.

22. A machine-readable medium as recited in claim 20, wherein the partitioning
15 instructions comprises instructions for partitioning each primary color component of the digital color image being analyzed, and the color features comprise a separate color feature for each primary color of that digital color image.

23. A machine-readable medium as recited in claim 22, wherein the separate color features are represented by separate histograms, one for each primary color.

20 24. A machine-readable medium as recited in claim 20, wherein the partitioning instructions comprises instructions for partitioning each primary color component of the digital color image being analyzed, and the edge features comprise a separate edge feature for each primary color of that digital color image.

25 25. A machine-readable medium as recited in claim 24, wherein the separate edge features are represented by separate histograms, one for each primary color.

26. A machine-readable medium as recited in claim 20, wherein the texture-type feature, texture-scale feature and texture-energy feature are represented by respective histograms.

27. A machine-readable medium as recited in claim 20, further comprising:

5 instructions for applying the partitioning and extracting steps to a new digital color image to be used as a query image;

instructions for comparing the feature set of the query image to the feature set of each digital color image in at least a subset of the collection; and

10 instructions for identifying each digital color image in the collection that has a feature set that is similar to the feature set of the query image.

28. A machine-readable medium as recited in claim 20, further comprising:

instructions for selecting a particular digital color image in the collection as a query image; and

15 instructions for comparing the feature set of the selected query image to the feature set of each digital color image in at least a subset of the collection; and

instructions for identifying each digital color image in the collection that has a feature set that is similar to the feature set of the selected query image.